

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) An open loop method of controlling flow rate of a fluid through a valve flow modulating member that is controlled by a position of a valve stem, the method comprising:

setting a target flow rate;
determining a target valve stem position based on the target flow rate; and
adjusting the valve stem position until a position of the valve stem matches the target valve stem position.

2. (Currently amended) The method of claim 1, wherein determining the target valve stem position comprises:

determining a pressure coefficient;
calculating a flow area of the valve flow modulating member; and
determining [[a]] the target valve stem position corresponding to the calculated flow area.

3. (Previously presented) The method of claim 2, wherein calculating the flow area of the valve flow modulating member comprises using the target flow rate and the determined pressure coefficient.

4. (Currently amended) The method of claim 2, wherein determining the target valve stem position comprises using a predetermined relationship between the target valve stem position and the calculated flow area.

5. (Currently amended) The method of claim 2, wherein calculating the flow area of the valve flow modulating member comprises modelling flow rate through the valve flow modulating member to determine a relationship between a function of fluid pressure upstream and downstream from the valve flow modulating member, the flow area of the valve flow modulating member, and the target flow rate through the valve flow modulating member.

6. (Original) The method of claim 5, wherein the modelling assumes that an internal energy of the fluid is constant across the valve flow modulating member.

7. (Original) The method of claim 5, wherein the modelling assumes that a density of the fluid remains substantially constant across the valve flow modulating member.

8. (Original) The method of claim 2, wherein the fluid is in a gaseous state.

9. (Original) The method of claim 8, wherein calculating the flow area of the valve flow modulating member comprises estimating a pressure of the fluid upstream from the valve flow modulating member and a pressure of the fluid downstream from the valve flow modulating member.

10. (Original) The method of claim 8, wherein the pressure coefficient includes a squared pressure difference ratio.

11. (Original) The method of claim 8, wherein the pressure coefficient is estimated using maximum and minimum flow conditions.

12. (Original) The method of claim 2, wherein the fluid is in a liquid state.

13. (Original) The method of claim 12, wherein the pressure coefficient is estimated using maximum and minimum flow conditions.

A 14. (Original) The method of claim 12, wherein calculating the flow area of the valve flow modulating member comprises estimating a pressure of fluid upstream from the valve flow modulating member and a pressure of the fluid downstream from the valve flow modulating member.

15. (Original) The method of claim 12, wherein the pressure coefficient includes a ratio of the difference in the upstream pressure and the downstream pressure when the valve flow modulating member is fully open to the difference in the upstream pressure and the downstream pressure when the valve flow modulating member is fully closed.
